PACIFIC BRYOPHYTES: 2. ARACHNIOPSIS IN SOUTHERN MELANESIA

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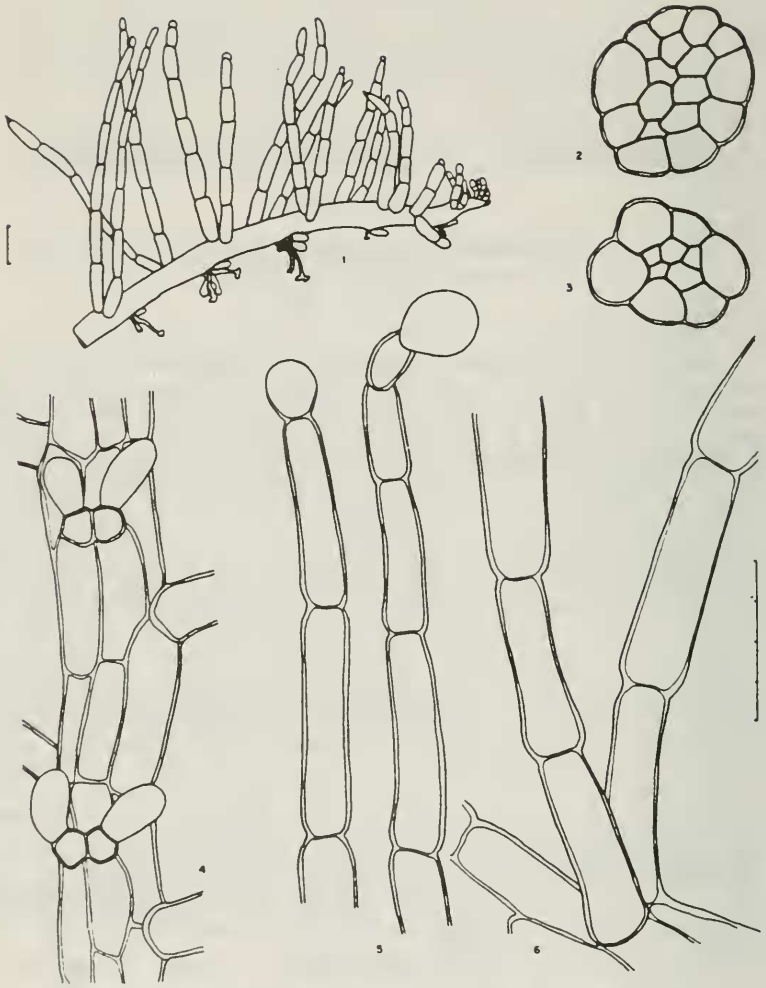
Spruce (1882) founded Arachniopsis to accommodate a group of species of very small plants with filiform leaf segments only a few cells long and having underleaves reduced to two cells bearing slime papillae. The genus is principally Latin American with four species, A. coactilis, diacantha, dissortricha and pecten, being recognized by Fulford (1968). A fifth taxon, A. confervifolia (Hampe ex Gott.) Howe, was considered by Howe (1902) to be the same as A. coactilis. Stephani (1922) described A. madagascariensis from Madgascar from a collection by Villaume. Herzog (1950) added A. major from Borneo and the species has since been reported from West Irian by Grolle (1967) and Grolle and Piippo (1984). Herzog (1950) noted, too, the discovery of a form of A. coactilis in collections from Nigeria. Arnell (1963) listed A. diacantha, under which he included A. coactilis, A. filiformis and A. madagascariensis as synonyms, with distribution in Brazil, Peru, Madagascar, West Africa, South Africa, and Southern Rhodesia. If A. diacantha and A. coactilis are separate species as treated by Fulford (1968), then Arnell's illustrations suggest that A. coactilis was drawn taking into account the number and proportion of cells drawn for each leaf segment. In Schuster (1965), Schuster and Grolle described A. monocera from a collection by Griffiths on Mt. Ophir in India and placed the species in their new subgenus Amphidactylopsis which is unknown to me. Spruce's Jungermannia monodactyla was placed in Arachniopsis (Schuster, 1965) but Fulford (1968) considered it to be a species of Regredicaulis which Grolle (1983) placed in synonymy with Zoopsidella. Hodgson (1964) reported A. herzogii as present in New Zealand but that species is now best considered a Telaranea.

Collections of Arachniopsis from Vanuatu (formerly New Herbrides) came from very humid sites and consisted of scattered stems growing amongst other bryophytes. The leaves are ascending from the stem (fig. 1) which is prostrate and often almost hidden among associated plants. The plants are pale green to whitish with extraordinarily large cells which are distinctive even under low magnification. There is some tendency for the cells to collapse on drying but most regain their apparent turgor quickly upon wetting with warm water.



Arachniopsis major Herzog. 1. Habit, scale = 100 µm. 2, 3. Stem cross-sections, scale = 100 µm. 4. Stem and underleaves (rhizoids not shown), ventral view, scale = 100 µm. 5. Leaf segment tips, scale = 100 µm. 6. Leaf base, side view, scale = 100 µm.

Differences among species of Arachniopsis seem to rest upon numbers of cells in each mature leaf segment, the size of the cells and relative wall thickness. In our material the most robust leaves are comprised of as many as 10 full-sized cells although 7-8 is the more usual number. Where competition appears to be greater, fewer leaf cells may be formed. Leaf segments in our specimens are fused for a very short distance at the base (fig. 6). The cells are up to about 150 µm long and 40 µm wide becoming somewhat narrower above. The tips of leaf segments normally bear one, sometimes two, isodiametric cells which are easily broken off (fig. 5). It is likely that these cells function as gemmae. The underleaves are comprised of two small, more or less quadrate cells each bearing a single large thin-walled papilla-like cell (fig. 4). Some variation occurs in stem anatomy with very robust stems being comprised of a few more cells than those of smaller diameter (figs. 2, 3). Rhizoids are few and are restricted to the two cells of the underleaf basal disc. Branching was infrequent in our collections and was uniformly ventral intercalary from the axil of the underleaf.

In most important respects the collections from Vanuatu agree with Arachniopsis major Herzog, but our robust specimens have more cells in the segments, somewhat smaller leaf cells than described (but not larger than the cells Herzog illustrated) and underleaf "papillae" short cylindric instead of globular. However, no striking differences deemed worthy of separate taxonomic recognition are apparent.

Arachniopsis major Herzog. 1950. Trans. British Bryol. Soc. 1: 294, fig. 12-13.

VANUATU: Erromango Island, Rantop Mountain summit, 2600-2760 feet, in cloud forest, 28 June 1984, H. A. Miller 14784 (fig. 1-6), 14892, 14904; Tanna Island, Mt. Tuokosmeru summit, 3300-3600 feet, in cloud forest, 17 July 1984, H. A. Miller 15763A, 15785A.

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